VITAMIN A FOR CHILD SURVIVAL
CHIKWAWA DISTRICT, MALAWI

USAID CHILD SURVIVAL X
MIDTERM EVALUATION

COOPERATIVE AGREEMENT #FAO-0500-A-00-4041-00
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INTERNATIONAL EYE FOUNDATION
BLANTYRE, MALAWI

MID-TERM EVALUATION REPORT OF THE VITAMIN A FOR CHILD SURVIVAL CHIKWAWA DISTRICT, MALAWI

USAID CHILD SURVIVAL X
COOPERATIVE AGREEMENT #FAO-0500-A-00-404 l-00

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LIST OF ABBREVIATIONS

ADRA	Adventist Relief and Development Agency
AIDS	Acquired Immune Deficiency Syndrome
ARI	Acute Respiratory Infection
BHR/PVC	Bureau for Humanitarian Response, Programme for Voluntary Cooperation (USAID)
CDD	Control of Diarrhoeal Diseases
DHO	District Health Officer
DIP	Detailed Implementation Plan
DRF	Drug Revolving Fund
EPI	Expanded Programme on Immunization
FFW	Food For Work
GOM	Government of Malawi
GNP	Gross National Product
HIS	Health Information System
HA	Health Assistant
HSA	Health Surveillance Assistant
IDA	Iron Deficiency Anemia
IDD	Iodine Deficiency Disorders
IEF	International Eye Foundation
IGA	Income Generating Activity
IMF	International Monetary Fund
IMR	Infant Mortality Rate
IVACG	International Vitamin A Consultative Group
KAP	Knowledge, Attitudes and Practice
KPC	Knowledge, Practice and Coverage
MCH	Maternal and Child Health
MK	Malawian Kwacha
MOH	Ministry of Health
M4E	Monitoring for Empowerment
MTE	Mid-Term Evaluation
NGO	Non Governmental Organization
NID	National Immunization Day
OMA	Ophthalmic Medical Assistant
ORS	Oral Rehydration Solution
ORT	Oral Rehydration Therapy
PEC	Primary Eye Care
PHC	Primary Health Care
PVO	Private Voluntary Organization
QECH	Queen Elizabeth Central Hospital, Blantyre
STAFH	Support To Aids and Family Health Project
STD	Sexually Transmitted Disease
SUCOMA	Sugar Company of Malawi
TBA	Traditional Birth Attendant
l-r	Tetanus Toxoid Vaccine
VAD	Vitamin A Deficiency
VHC	Village Health Committee
VHV	Village Health Volunteer
WFP	World Food Program
WHO	World Health Organization

1. EXECUTIVE SUMMARY

This Child Survival project of the International Eye Foundation (IEF) is in Chikwawa District of the Lower Shire valley, Malawi. The project area (all-ages population 490,000: under-5 years 97,000) is rural, remote and characterized by food insecurity associated with intermittent drought; as elsewhere in Malawi, about 20% of children die before the age of five years. Major causes of child mortality are malnutrition, malaria, AIDS and AIDS related diseases, diarrhea, and respiratory infections. There has been little or no improvement in the severely high child mortality rates during the past 15 years. Maternal mortality in Malawi, estimated at 620 per 100,000 is also high. Literacy rates in Chikwawa District are under 50%, less than 20% for girls. The decrease in vaccine preventable diseases is a unique, and striking, health related success. Measles incidence is falling and Malawi has been reported polio free since 1992.

At the macro level, economic indicators such as Gross National Product (GNP) are not improving. At the household level, food and commodity prices have risen sharply during the project period associated with devaluation and IMF structural adjustment policies. As one result, over 80% of the project population still live below the absolute poverty line. The World Bank in a 1995 report on Human Resources and Poverty concluded unequivocally: "This profile confirms that the condition of human resources in Malawi is dismal and that poverty is widespread."

The economy of Chikwawa District is overwhelmingly agricultural. Two broad categories of the population are engaged in agriculture - smallholders whose main income comes from their landholdings, and agricultural laborers who work on a sugar estate. There is little off-farm work and real wages for unskilled estate labourers are low.

This report evaluates IEF's performance since the cooperative agreement award on the basis of criteria provided in a guideline, objectives to be achieved and accomplishments, developed by IEF and USAID. It has combined elements of both interim and strategic evaluations. Specifically, the purpose of the Mid-Term Evaluation, at 24 months into the cooperative agreement period, has been: 1) To assess progress towards project objectives; 2) To identify both constraints and corrective actions in order to enhance the effectiveness of implementation; and 3) To assess potential sustainability of project benefits.

Members of the evaluation team were: Nicholas Cohen MD, External Evaluator and Team Leader; Liliana Riva Clement MPH, IEF headquarters Child Survival Coordinator; Christine Witte PhD, IEF Country Director; Genner Chipwaila, Project Manager; and Nelson Gobede, District MCH Coordinator. The evaluation took place from August 18 through August 30 1996.

The project has been involved in a great deal of training; there should now be emphasis on the quality of training, as well as measuring outcome. There is a serious risk of overloading some key categories of health workers involved in implementation at the community level, especially Health Surveillance Assistants. Priorities for HSAs need to be reconsidered in the light of realities on the ground. Standardization of supervision at all levels, including the development and use of checklists, would be a major contribution to MOH effectiveness and sustainability at the end of the project. A great deal of health and management information is being collected. But existing systems could be strengthened and simplified, the aim being to improve focus and feedback.

The evaluation team realizes that anaemia is not an intervention addressed by the Detailed Implementation Plan (DIP), however, 50% of women in Chikwawa District are anaemic. Women remain comparatively neglected by direct interventions. Severe anaemia is also common in children. Iron supplementation is a missed opportunity with dangerous consequences in a population with high levels of anaemia.

Results of the evaluation were shared with representatives of the MOH, as well as IEF staff, during the final debriefing meetings. A copy of the evaluation report will be given to counterpart agencies. A summary of results will be given to village health committees and village health volunteers. Meetings to discuss the findings, and to consolidate the sustainability plan, will be held with all parties.

2.2. Project Description and Design

Beginning in September 1994, the International Eye Foundation was awarded a three-year Child Survival cooperative agreement (CS-X:#FAO-0500-A-00-4041-00) for Chikwawa District with a total budget of $1,055,391. The Detailed Implementation Plan (DIP) called for extending the existing PHC infrastructure from health facilities into communities. As a major design feature, it was intended to assist the public (Ministry of Health) and private sectors so that project activities would be absorbed and sustained at the end of the Child Survival cooperative agreement. This system had been successfully pioneered by IEF in the same District under a previously funded Child Survival cooperative agreement. See Annex organogram for project administrative structure.

Specific interventions and activities targeted defined groups - immunization, vitamin A, control of diarrheal diseases, nutrition, Maternal Care, Eye Care, Drug Revolving Funds, Income Generation. See Table 1. Objectives for each intervention, as given in the DIP, are detailed in Table 2.

AIDS, STD work and Family Planning were initially part of the project. But since February 1996, and with the agreement of the USAID, AIDS, STD and family planning-related activities have been shifted to a separate project - Services to AIDS and Family Health (STAFH). Therefore AIDS, STD and family planning related activities are not considered in this evaluation.

The DIP set down that project staff should provide training to MOH and PVO staff in immunization, vitamin A, diarrheal disease control, and community based monitoring systems. Traditional Birth Attendants (TBA) would be trained by IEF and the MOH, using a modified MOH curriculum including diarrheal diseases control and exclusive breast feeding messages. TBAs would also be trained to deliver vitamin A to post partum women.

Traditional healers would be trained for Primary Eye Care. A referral system would be developed between community health workers, such as traditional healers, village health volunteers, TBAs, and the MOH.

Vitamin A should be provided by IEF as back-up to the District hospital and health facilities for supplementation and treatment of clinical VAD, including measles and severe malnutrition. ORS and other family planning methods, including condoms, were to be obtained from the MOH and supplied to village health volunteers and community based distributors.

IEF has a long term commitment to enabling communities to participate in improving their own health. This Child Survival project aimed to form and train village health committees in over 100 communities where they were known not to exist. VHCs would be empowered to choose and oversee the work of village volunteers, TBAs, and eventually drug revolving funds and income generating activities.

Malnutrition is, as one would expect, a persistent as well as an acute problem. Countrywide, wasting in under-5 children has increased from 2.8 % in 1980 to 7.0% in 1995. There is marked seasonal, as well as annual, variation in malnutrition. In 1994 in the project area, 3% of young children were acutely malnourished and half were stunted, a sign of chronic undernutrition. In 1996, based on Monitoring for Empowerment (M4E) data, about a third of children seemed to be malnourished (WFP). Micronutrient malnutrition is also widespread and severe in the Lower Shire valley. In the early 1980s, 4% of young children showed clinical signs of vitamin A deficiency (VAD), considerably in excess of the WHO threshold for a problem of public health significance. There is no recent survey data on vitamin A status, anecdotal evidence suggest some improvement. Iron deficiency anaemia, associated with malaria and low dietary intake, is prevalent in both young children and women of child bearing age. Almost 60% of women at the District hospital antenatal clinic have been reported anaemic. There are no figures for iodine deficiency. But IDD is highly prevalent elsewhere in Malawi and iodized salt is little used in the Lower Shire valley.

The health infrastructure in Chikwawa District consists of a District hospital, a mission hospital, a MOH rural hospital and 11 health centres with linked health posts. SUCOMA estate has 7 health centres and a senior Clinical Officer. At the time of the evaluation, there was only one doctor working in the District, at Montfort hospital. The acting District Health Officer, a Clinical Officer, was not a medical Doctor, though well experienced in a range of surgical as well as medical interventions. Each health unit operates monthly under-5 clinics at outlying villages, as well as other health care services such as antenatal care and delivery. Health centres are understaffed and essential drugs are often out of stock. Medical Assistants with three years training work at major health centres. Health Assistants, (10 in the District with two years training) staff health posts. Health Assistants supervise Health Surveillance Assistants (120 in the District with eight weeks training). HSAs are directly responsible for the majority of activities at community level. Two thirds of villages now have village health committees (VHC), as well as village health volunteers (VHV).

In 1994, about 100,000 Mozambican refugees were repatriated from Chikwawa District leaving behind a degraded environment, and taking with them considerable sources of donor aid. The 1995 and 1996 rains were heavy, resulting in good harvests, improved household food security and greater availability of cash. On the other hand, the prices of food and other essential commodities, such as maize flour, sugar, petrol, have risen steeply associated with three-fold devaluation of the Malawian Kwacha (MK) and structural adjustment.

3. EVALUATION METHODOLOGY

The present Mid-Term Evaluation takes place during month 24 of project implementation, August 1996.

The purpose of the evaluation is:

1) To assess progress towards project objectives;
2) To identify possible corrective actions in order to enhance the effectiveness of implementation;
3) To assess potential sustainability of project benefits.

Annex A details the Scope of Work of the External Evaluator, responding to USAID 1995 Mid-Term Evaluation guidelines.

IEF selected an evaluation team with extensive experience, both in health care in Africa and in USAID funded child survival projects. The External Evaluator and Team Leader was Dr Nicholas Cohen, a public health and nutrition specialist, formerly with the Expanded Programme on Immunization, WHO, Geneva, and with four years field experience in Africa. Other members of the evaluation team included the IEF Child Survival Coordinator at headquarters, IEF's Country Director, the Project Manager, and the MCH Coordinator from the Ministry of Health for the project District. Annex B lists team members.

The evaluation team worked 14 days in-country; there were five days of field observations in the project area. Annex C gives the evaluation schedule. Annex D shows individuals and institutions interviewed. In Chikwawa District, visits were made to the District Hospital, St Montfort Hospital, SUCOMA estate main clinic, two health centres, health post, under-5 clinic, three village health committees, drug revolving fund and two income generating activities. Villages visited were intended to be representative and widely distributed throughout the District. Semi-structured interviews (see Annex E for example of questionnaire instrument) were used in several of these health facilities, as well as with other groups and individuals including HAs, HSAs, village health committees, village health volunteers, traditional healers and a traditional birth attendants.

The results of a KPC survey, carried out immediately before the evaluation, provided quantitative data. Annex F summarizes the KPC survey methodology and findings. Findings from the KPC survey, along with other MTE assessments, have been used to assess progress in meeting the original objectives (see Table 2). The approach for the KPC was to allow the IEF staff, under the direction of the Program Manager, Genner Chipwaila, conduct the survey with little assistance. Although all staff had participated in prior surveys, the approch granted staff much more autonomy than in previous years. There are some questions as to the precise sampling techniques used and as to the wording of some of the survey questions, which are being addressed by the IEF.

The project aimed to train volunteers and Health Surveillance Assistants jointly with the MOH. Village health volunteers (VHVs) should provide vitamin A, ORS, and nutrition education. Volunteers should also maintain registers of children under six years, women of child bearing age, pregnant women and children under one to assist with vitamin A distribution and immunization efforts. VHVs are to be supervised jointly by VHCs and HSAs. Each HSA would be responsible for 5 - 10 villages and 8 - 15 VHVs.

Table 1: Project Interventions, Activities and Target Populations

Intervention/Activity	Target Population
Immunization	Children 0 - 11 months Women 15 - 49 years
Vitamin A	Children 6-71 months Women 30 days post partum
ORT	Children 0 - 23 months
Nutrition	Children 0 - 5 years
Maternal Care	Women 15 - 49 years
Eye Care	All ages
Drug Revolving Fund	All ages
Income Generation	Villagers

4. INTERVENTIONS AND ACTIVITIES

4.1. Immunization

Achievements

Immunization has been a long standing priority for the MOH. Immunization activity in the project area is implemented by the MOH with technical and logistical support from the IEF. Project immunization objectives are on target, or have already been met.

Coverage for DPTl, polio3 and measles was already above 85% in the project area at baseline. Over 90% of mothers could produce an immunization card for their child; 75 % of mothers had a card for their own tetanus toxoid immunization. Immunization activities had been initiated in all communities and have continued being given by the MOH at both static and mobile centres. Both countrywide and in Chikwawa District, the decrease in vaccine-preventable diseases in the 1990s is a striking success story. Malawi has been polio free since 1992; the incidence of measles has been reduced considerably. Measles is no longer one of the major killers in childhood.

The WHO Global Programme on Vaccines recommends that child immunization against the six target diseases - tuberculosis, diphtheria, pertussis, tetanus, polio and measles - be completed by the age of 12 months. The DIP proposes that 75 % of children aged 12-23 months fully immunized by age 12 months in the project area. At the mid-term the KPC reported, 74% of children were fully immunized by 12 months, equivalent to the end-project objective of 75% fully immunized. Eighty percent of children aged 12-23 months were fully immunized, as compared with the end-project objective of 90%, indicating no change from the baseline level of 83 %. At the MTE 76% of women had received two or more doses of TT, the end-project target is 75 % .

Coverage objectives, baseline status and achievements for immunizations, and for all other interventions, are shown in Table 2.

Although not a project objective, two National Immunization Days (NIDs) coincided with the MTE. At NIDs in Malawi polio vaccine should be given to all children O-5 years, whether they have been previously given a three dose course of OPV or not. High coverage is essential for NIDs to be effective in eradicating polio virus circulation. This is because the aim of NIDs is not only to protect individuals but to replace circulating wild virus with vaccine origin strains. Vitamin A supplements are given to children aged 6-71 months who have not been given vitamin A supplements within the previous six months. Preliminary returns for the NIDs showed 74% coverage for polio vaccine, low as compared with NID results from many other countries. NID coverage was probably low because of limited publicity, as well as confusing radio messages about the importance and safety of NIDs.

The results are generally reliable and the survey does reflect trends in intervention accomplishments. It is expected that the team will be able to adjust their methods in time for the final evaluation.

Assessment reports prepared by IEF field coordinators covering immunization and administration of vitamin A supplements, training, village health volunteer knowledge and practice, drug revolving funds and income generating activities were also useful inputs for the evaluation. See Annex G.

Project coordinators, and MOH collaborating staff, were interviewed individually and in groups. Project data and management information were reviewed at the IEF office in Blantyre and at the field headquarters in Nchalo. So far as possible, the evaluation team visited all sites together. The External Evaluator, IEF-HQ Child Survival/Vitamin A coordinator and the Project Manager were involved with all field visits. Debriefing sessions at the end of each day of fieldwork addressed outstanding problem areas needing further exploration, raised new issues and identified the lessons learned. Findings and recommendations for implementation, management and sustainability issues were presented, and critically reviewed, in a final wrap-up session.

4.2. Vitamin A

Achievements

The objective for vitamin A supplementation of children is being met at Mid-Term. The objective for post partum women is not on schedule. In large part, this shortfall is due to differences in the DIP objective and MOH guidelines. The DIP objective relates to supplementation within one month of delivery, MOH guidelines refer to supplementation within two months of delivery.

Vitamin A deficiency is likely to be a serious cause of morbidity and mortality in early childhood in the project area, given the harsh nutritional and environmental conditions. The most recent 1983 survey of VAD in the Lower Shire valley showed night blindness rates of 2.4 % , two times in excess of WHO thresholds for a VAD problem of public health significance. In a survey conducted in 1994 by the IEF on the causes of childhood blindness in children in blind schools, it was reported that the percentage of VAD-caused blindness was greater in the older children that in the younger children; indicating a downward trend from approximately 1988 to the present.* The evaluation team found no cases of night blindness or clinical eye signs due to VAD. No children with corneal ulcers due to nutritional disease were reported from the District hospital in recent years. There remains, however, no hard data on marginal vitamin A status in Malawi since the early 80's.

Recurrent shortage of vitamin A was reported at all peripheral levels of the health care system, despite adequate stocks in District and Central stores. The evaluation team observed a shortage of vitamin A at some sites during the National Immunization Day.

The DIP objectives called for 75% of children 6-71 months of age to receive vitamin A supplementation every six months. 75% of children 6-71 months in the KPC survey had been given vitamin A. The DIP objective was for 50% of women to receive vitamin A supplementation within one month after delivery. Only 19% of women had received vitamin A at or within one month of delivery. On the other hand, another 12% of women had been given vitamin A within two months of delivery, yielding 31% post delivery vitamin A coverage. 9% of women had received vitamin A before delivery. Supplementation levels have not improved in successive cohorts of women giving birth, as would be expected.

At the baseline survey, a third of mothers could not state any benefits of vitamin A. However, at the MET, about half of mothers still did not know what vitamin A is good for. One in five mothers did not know which foods contain vitamin A.

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[2] Gilbert, C. et al. Causes of childhood blindness in East Africa: Results in 491 pupils attending 17 schools for the blind in Malawi, Kenya and Uganda. Ophthalmic Epidemiology. 1995.

Quality of immunization practices was assessed by survey as part of the evaluation. Specifically stocks of vaccines **and** freezer and refrigerator temperatures were assessed. As observed during the evaluation, immunization techniques were being properly followed, the cold chain was being maintained, records were kept and there was adequate supply of vaccine in all units surveyed. The evaluation team was able to confirm, in general, the high quality of immunization practice. A few instances were reported of vaccine shortage over the previous year, due largely to shortage at MOH central level and sometimes delayed transport to the periphery. There were reports of problems with the cold chain due to electricity breakdowns and lack of fuel (gas/paraffin) for refrigerators.

Recommendations

Activities to maintain, and further increase immunization coverage should be strengthened. Publicity for NIDs should be emphasized. At the same time, the quality of vaccine handling and delivery needs to be constantly examined. Raising already high coverage levels requires focused efforts.

The evaluation has identified missed opportunities, especially failure to immunize sick children, as a block to further raising coverage'. The MOH recommends immunization of children sick with fever or diarrhoea. But, in a MTE survey of staff at health facilities, some respondents indicated they would not immunize a sick child. Missed opportunities for giving 'IT to mothers are mainly when mothers bring their children for immunization, and maternal immunization needs are ignored.

Measles coverage is lowest of the childhood vaccines (87%) and needs special emphasis. Measles vaccine is often being given later than the recommended nine months. Late protection against measles means, of course, that younger children are exposed to infection, and maintain transmission of the virus. A major reason for measles immunization being delayed, in general, is failure to give vaccine to children who have fever or diarrhea.

Disease reduction, or elimination, is the aim of immunization. Although not an objective for the DIP, the project should now attempt to improve the quality of disease surveillance and reporting for measles and neonatal tetanus. Reporting of neonatal tetanus is notoriously unreliable. The MOH could be supported with NT surveys to detect high risk areas.

The IEF needs to clarify its indicators and standardize its reporting and interviewing techniques to assure that data obtained in the present is comparable to data obtained in its earliest baseline reports.

'Determined in a conversation with a doctor from SUCOMA Clinic.

measuring such behavior is difficult. Different surveys have given different results due to the way in which answers by mothers to leading questions were recorded. Although the IEF team has prior experience with the KPC surveys, this may be a factor in the outcome reported.

Lack of availability seems to be the main reason why more ORS is not used. Villagers often have to travel long distances to look for ORS. It is also clear that ORS is often out of stock at all levels. There are many missed opportunities for providing ORS in different situations and to different health care providers such as TBAs, traditional healers (not current MOH policy), VHVs and village stores. Saturating the area with ORS providers would be the best way to ensure that ORS is always available.

Recommendations

IEF should concentrate on improving supply of ORS from the MOH, by creating 'fail-safe' systems for re-ordering at defined stock levels, trying to improve transport and by increasing the number of outlets. ORS should be available in as many places, and from as many people, as possible. A secondary recommendation is for review of messages aimed at encouraging continued breast feeding and giving solid foods during diarrhea.

Although beyond the project scope, the evaluation team noted that better water supply is one of the key priorities for VHCs. The recommendation is for collaboration with other NGOs having experience in the water field.

4.4. Nutrition

Achievements

The nutrition objective, related to breast feeding, has been met. At the MTE, 64% of women are self-reporting exclusive breast feeding of their children aged O-3 months, as compared with the DIP objective of 25%. It is unlikely that the true level of exclusive breast feeding is as high as reported, In the 1992 national survey, only 3% of children aged O-3 months were found to be exclusively breast fed (DHS, 1992). A more recent national survey reveals the same percentage of exclusive breast feeding (Personal communication, Dr. R. Broadhead, Department of Pediatrics, QECH). Early provision of both fluids and solids is apparently regarded as necessary by virtually all mothers in Malawi.

The KPC result is still encouraging. It can be interpreted as indicating that 64% of women now know that exclusive breast feeding during the first three months of life is desirable and appropriate. This acknowledgement may be the first step towards behavior change.

Recommendation

Continue breast feeding education, as currently implemented at the community level.

Recommendations

Shortfalls in vitamin A supply at all levels need to be corrected. Simply making sure that vitamin A is always available will raise child coverage. As with other supplies, the problem should be addressed by looking at reserve stock levels, improving response time to re-ordering and trying to do better with transport to peripheral health facilities.

Reaching post partum women with vitamin A supplements is always difficult. Coverage depends ultimately on the proportion of deliveries attended by a trained attendant. Efforts should be intensified to reach as many women as possible at delivery, using VHVs as well as TBAs. At the same time, IEF should liaise with the MOH about bringing recommendations for post partum supplementation into line with WHO guidelines. So long as MOH recommendations for supplementation within two months are maintained, the Child Survival project should report on both time intervals.

There should be much more emphasis on improving community knowledge about vitamin A and healthy eating in general. Vitamin A must be seen as a food and not a medicine. The IGA gardens should be used to promote this objective. Although not in the DIP, other projects such as planting fast growing papaya plants could be considered.

The problem of marginal deficiency should be addressed with a serum retinol survey for the district. IEF should explore options for funding such a study which is clearly out of the realm of child survival programming. Survey results would impact information of the project's vitamin A interventions.

4.3. Control of Diarrheal Diseases

Achievements

The DIP objectives have not yet been met. Only 73% of children O-23 months are getting ORS during a diarrheal episode, compared to the DIP objective of 90%. Ten percent more children were being given sugar-salt solution. But the team noted that the use of sugar-salt solution, as replacement for ORS, is actively discouraged by the MOH. 65% of children in the same age group are receiving the same amount, or more, breast milk, compared to the objective of 80%. 42% of children O-23 months were receiving the same amount, or more, of solid food, compared to the objective of 65%.

Surprisingly, the MTE shows results for CDD treatment below baseline. There is no obvious explanation for breast milk/solid food related behavior during diarrhea, given the amount of education that the evaluation team believes has taken place. In the KPC survey sample only two children were stopped breast feeding during diarrhea, seeming to confirm the positive effect of education inputs. And very few mothers limited the amount of solid food being given. One possibility is that wrong, or at any rate confusing, messages have been given to mothers. Another possibility, which the evaluation team believes more likely, is that

Traditional healers interviewed by the evaluation team were enthusiastic, and confirmed that their knowledge and diagnostic ability had been increased. As regards treatment, the emphasis has been on avoiding harmful eye treatment practices and referral - a practice which causes widespread corneal damage and blindness in the area. They are taught that eye ulcers should be treated with other traditional methods that pose no risk to ocular or general health (i.e. tying charms around the wrist).

Group discussions with the evaluation team suggested that treatment methods have been significantly changed by PEC training. For example corneal ulcer in adults, due mainly to harvesting type injuries, is a very serious problem in the project area. The District hospital treated 195 corneal ulcers in 1993 and 227 in 1994. Most of these comeal ulcers had been previously treated by traditional healers with harmful local ointments; many progressed to blindness and enucleation of the eye. The PEC healers are trained to avoid putting medicines in the eye and to rely on charms or other non-western methods. If there is no improvement, referral should be made after three days. Traditional healers are now also asking IEF for tetracycline eye ointment. But MOH policy is not to provide antibiotic eye ointment (or products such as ORS) to traditional healers "in order to preserve traditional methods of medicine."

4.5. Maternal Care

Achievements

The objective of training traditional birth attendants for maternal care has been partially met. At Mid-Term Evaluation the project had trained 26 TBAs, final objective to train 50 TBAs. It is expected that IEF will be able to train the remaining number of TBA's by the end of the project.

All training and activities objectives and achievements at Mid-Term Evaluation are shown in Table 3.

The project has been successful in identifying and gaining the cooperation of active TBAs in villages, not always an easy achievement. The two TBAs interviewed by the evaluation team each carried out 4-9 deliveries a month. It was estimated that another 15-20 deliveries took place each month in the area of their surrounding villages. The TBAs are being given 1 month training using the MOH curriculum. They have been supplied with delivery kits including scissors, cord ties, washable dishes and plastic sheets. Both TBAs interviewed had vitamin A for post partum supplementation. They seemed aware of basic hygiene issues and reported no cases of neonatal tetanus in the previous year (TBA and non-trained attendant deliveries).

Recommendations

Continue activities as planned to complete training of all TBAs. The IEF should assess the effectiveness of training given and make necessary adjustments to approach and content. Revised refresher courses for all TBA should be given before the end of the project.

TBA training and contacts to date have been carried out by MOH (women) and IEF (men) staff. IEF is encouraged to give responsibility of this intervention to their only female Coordinator level employee.

4.6. Primary Eye Care

Achievements

The objective for Primary Eye Care (PEC) has been met. The DIP objective was to train 400 traditional healers in PEC. At MTE, 494 traditional healers have been trained.

PEC training has involved three days of two hour sessions. The syllabus includes: basic anatomy of the eye, evidence of a healthy eye, diseases of the eye, vision screening, eye problems (conjunctivitis, corneal ulcer, cataract), local treatment. Visual aids are used extensively. There has been in-depth monitoring of training outcome using a previously validated IEF methodology.

Recommendations

Continue refresher training of traditional healers, and carry out further evaluation of outcome. The evaluation team recommends that tetracycline eye ointment be given to traditional healers. In order to facilitate this process, discussions should be held with the MOH and Sight Savers in Lilongwe (Dr. Moses Chirambo, Regional Director Sight Savers, International and Acting Senior Ophthalmologist, MOH).

Trends in attendance at Chikwawa District hospital for comeal ulcer, 1994 through eventually 1997, should be examined as potential hard evidence of PEC training impact on disease outcome.

PEC training materials and evaluation methodology could be used as a model for other intervention/training settings.

Table 3: Project Training and Activities Objectives and Achievements at Mid-Term Evaluation

Objective	Achievement at Mid-Term Evaluation
Train 50 TBAs to provide antenatal care	26 TBAs trained
Train 400 traditional healers in primary eye care	494 traditional healers trained in primary eye care
Establish 6 drug revolving funds	6 drug revolving funds
Establish 10 income generating activities	5 income generating activities

Table 2: Coverage Objectives, Baseline Status and Achievements at Mid-Term Evaluation

Coverage Objective	Baseline Status 1994	Achievement at Mid-Term Evaluation 1996
75% of children 12 - 23 months fully immunized by 12 months	N/A	74%
90% of children 12 - 23 months fully immunized	83%	80%
75 % of women of child bearing age received at least two doses l - r	47%	76%
75 % of children 6 - 71 months received vitamin A semi annually	49%	75%
50% of women received vitamin A within one month of delivery	30%	19%
90% of children 0 - 23 months received ORT during diarrhoea episodes	83%	73%
80% of children 0 - 23 months received same amount, or more, breast milk during diarrhea	75%	65%
65% of children 0 - 23 months received same amount, or more, food during diarrhea	55%	42%
25 % of mothers exclusively breast feed their 0 - 3 month old children	21%	64%

4.8. Income Generating Activities

Achievements

The income generating activity (IGA) objective was half met at Mid-Term. Five income generating activities have been started, of the 10 proposed.

Generating income in an area as poor as Chikwawa District is not an easy challenge. The economy at village level has minimal cash surplus; most market niches have been filled by those who depend on such initiatives for survival. Profitable opportunities can still be provided through capital injection. The Child Survival project has attempted several of them.

At Mid-Term, two vegetable gardens have been started and three chicken farms. IEF is considering an IGA to process cotton and produce cotton seed oil. The vegetable gardens and chicken farms aim not only to produce income, but to make a contribution to better nutrition. The vegetable gardens were not visited. The team was told that one vegetable garden was producing vegetables for sale in local markets. Another garden was still at the early planting stage.

The evaluation team visited two chicken farms. About 200 chickens in each were being bred for egg production. Laying was due to start in 18 weeks, with estimated production in each of 150 eggs per day. The intention was later to improve local stock by selling surplus chickens from the IGA.

Chickens, vaccine and materials for the well built facilities, had been provided by IEF in collaboration with the Ministry of Agriculture and Veterinary Department. The chickens had been immunized, and were being fed a layers mash formulated on a recipe consisting of locally available food (technical advise from the Veterinary Department). The young chickens appeared healthy with good weight gain.

Evaluation concerns about the sustainability of the project chicken IGAs focus on the lack of market research about income generating opportunities from sale of eggs and mature chickens. Eggs sell in the project area at MK 2. Therefore daily cash income of MK 300 would be needed from communities to purchase the predicted egg output of each IGA, MK 9,000 per month. Furthermore, there is no provision for cold storage so egg stock cannot be cumulated. And the location of the chicken IGAs, remote from the main District road, makes egg transport to distant markets impractical. Taking all these factors into account, the evaluation team is not convinced that predicted sales figures are realistic, given that chickens already produce eggs in the communities and surplus cash is scarce in villages.[3]

[3] It is the understanding of the Director of Programs that the eggs will be sold at the commercial centers of Chikwawa, Nchalo and Sucoma and not necessarily the village itself. Transport by bicycle is a daily event following existing roads as well as local paths.

4.7. Drug Revolving Funds

Achievements

Objective to establish six drug revolving funds @RF) has been met.

The evaluation team noted several unresolved questions about the objectives and functioning of DRF. For example, the DRF visited appeared considerably under-used; there were only 30 treatments reported with Fansidar over a year. Yet villagers perceived Malaria as a major health problem and the nearest Health Centre was at least 1 hour away. ORS was also out of stock.

The DRF was maintained by a single individual (VI-IV) and there were no arrangements for access when he was absent. Location of the DRF was unmarked and the only publicity appeared to have been a single group discussion with the VHC. In the IEF assessment, lack of supervision was a problem specifically mentioned by DRF volunteers.

Ministry of Health policy is to run DRF for profit. The MOH is said to have a DRF in the project area with MK 9,000 accumulated profit. It is intended to open a savings account for the DRF, and use surplus for loans. In the IEF project, it was initially unclear whether drugs were being sold at cost or for profit. As important, the issues and implications of such alternative policies had not been made explicit. In fact, the IEF project is selling drugs for profit (100% mark-up for Fansidar). The evaluation team believes that selling drugs for profit not only makes sense, it ensures so far as possible the survival (sustainability) of the DRF. The profit motive is an obvious incentive for those managing a DRF and ensures that supply can be maintained. Still the level of charges for drugs needs to be carefully determined; the profit margin should be adequate but if possible below competing local stores.

Recommendations

Follow MOH policy to use the VHC rather than an individual VI-IV as responsible for DRF, in order to increase access to the DRF for villagers. Publicity campaigns should be mounted to announce DRFs and educate communities about the service. Malaria treatment could easily be added to project health education activities to increase awareness both of treatment opportunities and of the DRFs. The IEF should explore the possibility of adding condoms and iron tablets to the DRF kits. Of course, this would need to be in conjunction with the MOH. Although not an MOH current recommendation, the evaluation team believes that, in the Chikwawa context, making condoms available at DRF would be life saving.

It should be clear that DRF are run for profit. Arrangements should be made to deal with surplus funds.

To simplify record keeping, only a tally sheet of users need be kept; not a list of names as at present. Stock level monitoring should be explained to avoid recurrent shortages.

5. IMPLEMENTATION ISSUES

5.1. Community Education and Social Promotion

A primary focus of the Child Survival project has been on community education and social promotion especially in the areas of nutrition, breastfeeding and prevention of diarrhea. Efforts in those directions have been balanced against the specific Child Survival interventions, such as immunization and vitamin A supplementation, with more immediate and quantifiable impact.

Self-ownership of health, to the extent that is realistic in the project area, has been an ultimate goal. The approach has been two pronged: 1) Mobilization of community groups involving especially the formation of village health committees, and also the training of village health volunteers, traditional healers and traditional birth attendants, and; 2) Education of mothers and villagers to better understand the health problems of their communities, with the aim of promoting sustainable solutions as well as increased understanding of the potential for both preventive and curative health services.

Mobilization of Community Grouts Most of the over 500 villages in Chikwawa District now have a health committee (VHC). Each committee, usually with 8-12 members both female and male under the leadership of the village headman, should be responsible for village health concerns as well as for collaboration with the MOH to ensure that both national and local health objectives are met.

At the Mid-Term Evaluation the project had given training to 86 VHCs and 750 village health workers, satisfactory figures given the limited IEF personnel and the workload. The evaluation team met with two VHC; it was impressed with their enthusiasm, involvement and ability to identify key health-related issues for their villages such as the need for another borehole to reduce dependence on polluted river water, installation of pit latrines or improved access to drugs for malaria and ORS. Other anecdotal evidence suggests that, as one would expect, the effectiveness of VHCs is highly variable - a significant factor being the degree of involvement and personality of the village headman. Certainly this kind of self decision-making through group consensus is a new experience for most villagers; further support is needed to ensure that the system takes root.

Motivation of VHCs is a problem for which there is no easy solution. Villages in which there are committed VHVs, successful drug revolving funds or IGAs will obviously have motivated VHCs. But, at least for some time, that will not be possible for most villages. Indeed the long-term survival and effectiveness of VHCs is not yet assured.

An area on which the project should continue to focus is the relationship between VHCs and village health workers. The VHVs are normally ***de facto*** members of the VHCs and therefore can influence group decisions on health issues. But the VHCs should, in theory, also oversee

Recommendations

Establish five additional income generating activities as planned, with focus on vegetable gardens or similar nutrition-linked IGAs. Hold intended creation of further chicken rearing IGAs until data is available on outcome of existing projects.

Basic market analysis should be carried out for existing and future IGAs. Resulting information should be fed back to the village health committees, the MOH and the Ministry of Agriculture. Until existing IGA results are assured, care should be taken with raising community expectations for income generating opportunities.

The HSA, who mainly implement MOH outreach (along with far fewer medical assistants and health assistants), are grass-roots village health workers. Despite only 8 weeks formal training and limited basic education, they have emerged in the last few years as key workers for delivery of a very wide range of health services. Increasingly, and apparently not always involving coordination, responsibility for both interventions and monitoring have been passed on to HSAs. According to evaluation team observations, HSAs are now the community outreach arm for as many as 21 different intervention categories ranging from growth monitoring, under-5 clinics, monitoring for empowerment (M4E), TB control and supervising VHVs and TBAs. In the previous week, one HSA interviewed had been involved with vitamin A supplementation and immunization, coordination of income generation activities, a drug revolving fund, publicity for the national immunization day, obtaining a sputum sample for TB control, delivering supplies to several village health workers and a participatory rural appraisal of the monitoring for empowerment system.

Given the lack of support and, in the case of volunteers absence of remuneration, the poor motivation and high drop-out of VI-IV's observed by the evaluation team should be no surprise. The sheer logistical problems faced by HSAs, who are expected to travel great distances on foot or on old bicycles, alone must prevent the system from functioning to its potential.

The MOH objective is to have an HSA for every 2,000 population. There are currently about 120 HSAs in Chikwawa District (1 HSA per 4,000 population), each responsible for up to six villages. But there are only 10 health assistants in the MOH available for supervision of HSAs, along with three supervisors from the IEF.

IEF has lent supervisory support to the Ministry and thus strengthened the existing health care structure. IEF activity has also directly increased the number of HSA in the community. Sixteen HSA, trained by the IEF, have been taken over by the MOH. But there were major handover problems with HSAs. The HSAs handed over were required to repeat the 8 week training which IEF had given because the Ministry felt the training had focused too heavily on Child Survival interventions. Indeed one IEF trained HSA, not accepted by the MOH, still remains with IEF as a section coordinator. The other HSAs are now considered better trained overall that those with only MOH experience. Better coordination with the MOH could have avoided these problems.[4]

[4] Early in the project planning phase, IEF was in negotiation with the MOH at the National, Regional and District levels concerning training of the HSAs and their official certification. All criteria for HSA selection and salary payment were followed. Because approval of the official curriculum for training HSAs was delayed at the National level, IEF initiated training as close as possible to what was anticipated to be the official curriculum with full sanction by the Regional and District health officers. There was also an official handover ceremony with the District Health Officer where motorcycles and HSAs were turned over to the MOH.

(jointly with HSAs) and to an extent define the work of village health workers. Yet there is evidence that many VHC have little direct involvement with VHVs in their areas.

Health education of mothers and villagers Much of the thrust of the project has involved development of specific health messages and education-related activities. Transmission of knowledge has been explicitly identified as a critical step in the process leading to change in behavior. There has been extensive, often participatory, involvement with education at all levels of the community, as well as with MOH personnel.

Key health messages for all areas have been simple. They have been presented to communities through a variety of media - one on one education (for example with VHVs and TBAs), larger participatory didactic sessions with VHVs and villagers, drama presentations written and acted by villagers. Volunteers, IEF project staff and MOH staff trained by IEF have all been involved.

For nutrition messages, such as those involving promotion of exclusive breast feeding and increased dietary intake of vitamin A, original formative research involving focus groups was carried out to identify key and non-ambiguous messages. The evaluation team noted that the KPC survey did not show an increase in knowledge about management of diarrhea. This could be due to a focus on prevention of diarrhea, which was not covered in the KPC. The project needs to re-evaluate messages being presented for control of diarrheal diseases. Messages aimed at management of diarrhea should be intensified, to complement the focus on prevention.

Primary eye care educational material used messages previously validated in similar rural situations in Africa. Consistency of TBA messages reaching the community has been assured by using material developed by the MOH.

5.2. Human Resources for Child Survival

There are multiple types of health care providers in the project area. Some health care providers are directly employed by the IEF project, SUCOMA estate or NGOs, the majority work either directly for the Ministry of Health or are unpaid volunteers. The existing health care system in Malawi depends heavily on volunteers. The VHVs (over 90% women), VHCs and TBAs are all volunteers and there is also a network of traditional healers. Furthermore the least trained and lowest paid community workers, health surveillance assistants, are being loaded with an ever increasing number of tasks.

The MOH system and Health Surveillance Assistants The MOH health care system, forced to function at a very low per capita cost (around $1 per person per year available for health care), has created an extensive outreach mechanism. This outreach mechanism, reaching virtually every community in the country, has undoubtedly created the conditions for the national success with immunization. On the other hand the demands are tremendous, and likely to be self-defeating in the long run.

Vitamin A Consultative Group and Child Survival newsletters should be shared with the staff, not simply kept in the Blantyre office and at HQ. A good way to approach improving staff skills, using resource materials as background and reference, would be to schedule informal group discussions on specific topics as a part of regular staff meetings.

It should be noted that the IEF has taken care to involve staff in numerous meetings for their continued education in intervention topics. The project manager had recently returned from the IVACG meeting in Guatemala and the former Training and Supervision Coordinator attended a regional HIV/AIDs workshop in Uganda as well as a CS workshop in West Africa. There has also been participation of the staff at national events such as the Pneumonia Case Management Workshop in Malawi. There were also opportunities for staff to received formal training in computer word processing and spreadsheet programs. In 1995, a local management consultant was hired to provide staff training in management.

IEF Child Survival field staff. Twenty staff work directly for IEF based at the field office in Nchalo. See Annex **Project Organogram.** IEF staff include a Project Manager, five section coordinators (Information, Training, Community Health, DRF/IGA, PEC), an Accountant and support staff (drivers, mechanics, guards); 18 men and 2 women. The evaluation team believes that the size of the IEF team is consistent with the project objectives. It is adequate given the emphasis on delivering interventions and carrying out activities through a far larger number of MOH and NGO personnel and village based volunteers. Gender bias is still significant; the project should make an effort to employ more female staff. Job descriptions for the coordinators also should be reviewed following the evaluation, and updated.

Village Health Committees and Village Health Volunteers Despite its obvious attractions in a situation of chronic financial precariousness, there are inherent dangers of volunteerism. Thus although the initial successes in establishing VHCs and identifying VHVs is appreciated, a number of issues are yet to be addressed. All of them have been explored during similar experience with village-based health volunteers in other countries.

One such problem identified by the MTE is drop out. Long term volunteerism is problematic in most situations. And without some incentives the VHC and VHV system is difficult to sustain. Given the reality of drop out (for a variety of reasons), the IEF together with the Ministry need to consider built in methods for identification and replacement of VHVs. Job descriptions and responsibilities for both VHCs and VHVs could be more explicitly defined; expectations and constraints should be appreciated by both VHC members and individual VHVs.

Training The IEF has conducted a large amount of training for many different levels of staff and health volunteers; for example MOH personnel, VHVs, TBAs, traditional healers. See Table 3.

Much effort has gone into training; pre and post-test evaluations are being performed. The training syllabuses are well thought-out and relevant for the target groups. The written material is adequate for this stage of the project and does not need any major change; it could usefully be assembled into a single training manual. The project should emphasize training targeted at appropriate MOH personnel, especially HSAs and their supervisors. Post training tests should be used to reorient refresher training at the weaknesses of participants. Training technique and assessment could be further improved; for example by ensuring that, as the project has progressed, the content remains need-based. Improvements to training would be assisted by focused assistance from a local hire consultant.

The evaluation team found the IEF staff as well to be in need of training. Specifically, a course in EPI-INFO would be appropriate given that the staff has requested it, and given that they are adept at most other aspects of evaluating the interventions and activities.

The evaluation team noted that there were few materials available to the staff to improve existing skills. An additional asset to the staff would be a resource library to keep informed how other countries are performing child survival projects. Materials such as from the International

5.3. Supplies and Materials for Local Staff

The project has supplied back-up vitamin A supplements to cover shortfalls in District supplies. A small amount of tetracycline eye ointment has also been provided for Primary Eye Care.

Fifteen motor cycles and two four wheel drive vehicles have been critical in maintaining logistics, supervision potential and feedback. HSAs trained by the IEF were given bicycles for their work in villages. Project motor vehicles are now in very poor condition. The evaluation team believes that at least one, and possibly two, replacements vehicles are needed to maintain project viability and logistic support.

A computer has been installed in the project field office. Due to lack of staff training, it has been used mainly for basic word processing and accountancy. Analysis of survey results involving EPI-INFO, which in our experience can be learned by motivated managers in a relatively short period, has been handled by outside consultants.

5.4. Quality Assurance

Quality is an issue central to the evaluation of any project. The project has done a good job of achieving set Child Survival outcomes; it has also worked well with the MOH. Since objectives are for the most part met, and as many of the indicators are now at high levels, the issue of improving quality becomes crucial. Quality assurance in the project can be thought of in two ways:

- Incorporation of quality assurance methods to assist with management and supervision;
- Monitoring quality of the delivery of interventions.

The IEF is aware of this issue and had planned a QA assessment to be completed prior to the MTE. However, in light of the changes of administration that took place, the assessment has been postponed.

As previously stated the management of the MOH suffers from a lack of staff and/or from the high number of personnel at the bottom layers of the MOH structure, with little supervisory personnel in the layers above. Therefore, maximizing the managerial skills of the upper level personnel is important to increase their efficiency. The IEF has trained the MOH, but few of the training were aimed at supervisory skills. For the final year of the project, emphasis as regards the MOH should be changed from health education - every indication is that the MOH personnel are adequately trained - to management and supervision.

Table 3: Major Training Activities by Target Group and Topic, 199596

Target Group	Topic	No. Participants at sessions	Comments
HSA & CHW	Child Survival	**30-23-28-29-35**	with MOH
VHV & VHC	Child Survival	164-82-229-210-148	
Ward attendants	Child Survival	30-35-25	
Mid-level Managers, MA, HA, Nurses	Child Survival	30-25-29	
Ward attendants, enumerators	Breast Feeding	**30-9**	
DRF volunteers & HSA	DRF	6-5	with MOH & Montfort Hospit
TBA	TBA skills	12-15	
Traditional Healers	Primary Eye Care	105-26-91-71	
IEF staff, Teachers, HSA	Primary Eye Care	5-12-16-12	
Village Volunteers	IGAs, PRA	200-24-30	with Ministry of Agriculture
Managers	Supervisory skills	14	
IEF staff	Computer skills	6	
		35 training sessions 1,841 trained	

Visual display of results is also a powerful aid to interpretation and a valuable summary tool. Currently only immunization and monitoring for empowerment trends appear to be routinely shown graphically. There could be increased visual summary of project data displayed at IEF headquarters in Nchalo.

The original health information system for the previous Child Survival project recorded vitamin A and ORS distribution, as well as maintaining a family register of births and deaths for each village, mentioned by a VHC and supervised by an HSA. But this system was impractical in the long term due to the heavy work demands and was phased out.

Recently, a system called monitoring for empowerment (M4E) has been introduced nationally. M4E is designed to be an early warning system for household food security and to be a quick method of collecting data to detect areas at risk of malnutrition. Although quite different, it has in some ways taken over from the previous project HIS system. M4E involves monthly recording by HSAs of weight for age, prevalence of oedema, diarrhea episodes, measles and eating patterns by class of food from a monthly sample of households in each village. Semi-annual reports are also obtained about environmental conditions. HSAs report the information to the HAs who compile the information into summaries to be sent to District and National levels.

The IEF M4E Coordinator, Ms Kristine Jones, explained the empowerment portion of the M4E as being critically dependent on rapid feedback to the field level. In practice, the HSAs and HAs interviewed for the evaluation had not received any feedback information from District level since submitting forms. The HSAs are also expected to provide immediate information on wt-for-age to the mothers, in order to encourage those at risk to report to a feeding center. Knowing that one third of children in the project villages were malnourished, using the indicator low weight-for-age, it is clear that nutrition rehabilitation services would be saturated, if this system worked at full capacity. Individual feeding advice will only resolve a part of the problem. Again, in practice, the personnel interviewed was not aware that this immediate feedback is part of the M4E system.

This evaluation is only intended to review monitoring for empowerment in so far as it relates to the project objectives and implementation. In this respect, it is clear that M4E surveillance takes up a significant proportion of field time for the most active peripheral health workers (the HSAs). The gains are not immediately obvious. In our experience, the purpose of the system is little understood both by those who use it and by those who should benefit from it. M4E originates from a relief-based situation for which it was probably appropriate. Our sense is that extension to national scale has taken place in response to donor pressures, without validity being rigorously tested in this very different context. IEF must weigh their involvement based on the MOH's desire to continue to participate in the system and should keep the MOH abreast of the limitations encountered by the M4E.

The project personnel presented the evaluation team with several assessments of the project interventions which were well carried out and thorough. See examples in Annex G. The staff have shown an ability to perform assessment including analyzing and compiling information for presentation, even without knowledge in EpiInfo specifically. However, this evaluation system has not been incorporated into the project to constantly monitor the interventions. The exception is immunization where control systems to maintain vaccine potency, the integrity of the cold chain and sterile injection technique are relatively well integrated. With the assistance of a consultant, the project should establish such mechanisms for all interventions. The IEF already has experience in Latin America with quality assurance, this expertise should be used in Malawi. The exercise would also be of value to the MOH in raising standards of both curative care and preventive services. Monitoring of stocks and improved reordering strategies should be priority components of training for quality assurance. The evaluation team identified remediable problems in stocking of vitamin A, ORS and several key medications at health facilities throughout the District.

5.5. Supervision and Monitoring

Supervision and monitoring through a health information system are areas which most need to be strengthened in the final phase of the project. More effective, and participatory, systems of supervision and monitoring would be major contributions to the MOH and to project sustainability.

Ideally, supervision should be used to assess progress towards established objectives and improve the quality of services. Supervision involves systematic processes including for example rapid feedback, review of data to detect problem areas, and need-based refresher training based on the results of supervision outcomes.

As one would expect for a project working in the difficult conditions of Chikwawa District, IEF supervision has been far less formalized than the above model. It has been adequate for ensuring delivery of interventions and for reaching most of the Child Survival objectives. But improved quality assurance, as outlined above, is dependent on improved supervision. The project should now introduce basic check lists for supervisory visits, lists which are simple enough to be used routinely by the MOH. Reference material on appropriate supervision check lists for Child Survival Interventions and District health care are available through WHO/UNICEF.

In general, any data collection should be as limited as possible. Only data that has practical use in assessing progress towards defined objectives and goals should be collected. The evaluation team believes that far too much information is currently being recorded by the project (and by the MOH) putting an unnecessary load on field workers and taking time from preventive and curative activities. Efforts need to be made to reduce data load. In this context, it is often helpful to make a distinction between indicators of process (coverage, number of pills sold by a drug revolving fund) and indicators of outcome (cases of measles reported, deaths among women delivered by a TBA).

The IEF staff organize and manage a quarterly meeting of the District Technical Group composed of IEF, MOH, Montfort and other relevant organizations. Additionally, the IEF participates in the semi-annual meeting of the District Primary Health Care Coordination Committee for the MOH.

The external evaluator was particularly impressed by the closeness of counterpart relationships in all aspects of project planning and implementation. Successful managerial and technical collaboration with the MOH has undoubtedly been a major factor in determining progress so far. All opportunities for continuing collaboration should be emphasized as being the key to sustainability.

5.9. Referral Relationships

The project is not directly involved in providing clinical care and referral. But community access to referral sites has been strengthened through formation of VHCs, training of VHVs, TBAs and traditional healers and by increasing their awareness of referral options. Knowing when, and where, to refer should continue to be seen as an important part of health care provider training and refresher courses. Better understanding of referral possibilities by traditional healers and TBAs are an essential approach to reducing blindness and maternal mortality.

Especially strong tertiary care referral links have been established with the District hospital, St Montfort hospital and the clinics on SUCOMA sugar estate.

5.10. PVO/NGO Networking

The project has close links with the mission hospital of St Montfort at Nchalo in the Lower Shire Valley. Information is regularly exchanged with ADRA who run a similar Child Survival project in an adjacent District.

One of the project local consultants, Kristine Jones, is supported by UNICEF for participatory rural appraisals on the Monitoring for Empowerment system. The project has been represented at meetings with FFW, WFP, UNICEF and other international agencies concerning health-related and nutritional issues, as well as relief work in Chikwawa District. The project manager has assisted World Vision with evaluation of their Child Survival project.

5.6. Headquarters Support

Administrative monitoring and technical support have been appropriate in terms of timing, frequency and needs of field staff. IEF Director of Programs, John Barrows, has visited the project once a year and provided administrative and technical backstopping. The previous Child Survival Coordinator, Jeffrey Brown, visited the project several times and provided technical assistance. The current Child Survival Coordinator, Liliana Riva Clement, took part in the Mid-Term Evaluation. The IEF Director of Administration and Finances, Edwin Henderson, will visit the project in September 1996. In addition, IEF headquarters staff are in frequent communication with the Country Office by telephone, fax and email.

Of great relevance, has been the staff changes which have taken place in the last year. At the headquarters office, as mentioned, Mr. Brown left abruptly for family reasons and was replaced by Ms. Clement. This trip was Ms. Clement's first to the project. Additionally, and more critical, was the change in Country Director. Mr. Joseph Canner ended his contract obligations in January of 1996. An interim Country Director, Ms. Catherine Brokenshire, was hired to handle transition activities in anticipation of Christine Witte's arrival as permanent Country Director in May of 1996. Dr. Witte has done an outstanding job of running the project in the short time she has held the position. She is in close contact with the field office and is responsive to their needs and those of the district MOH.

5.7. PVO's Use of Technical Support

The project has required and received technical assistance in the following areas: analysis of data, use of EPI-INFO, monitoring for empowerment, data collection and information systems, primary eye care, strategic planning, quality assurance and computerized accounting, income generating activities and gardens.

Technical support needs in the next 12 months to the end of the project should focus on quality assurance, supervision and monitoring, educational and training materials (to compile and summarize) and marketing of drug revolving funds and income generating activities. The required technical support can be provided by IEF headquarters staff, and through use of local hire consultants.

5.8. Assessment of Counterpart Relationships

The project has strong linkages with all the major providers of health care in the District: the MOH, Montfort mission hospital and SUCOMA. Meetings are held regularly with these groups. Several of the IEF coordinators have previously held posts with the MOH. Most training of health workers includes both participants and facilitators from each organization. Vitamin A has been provided to each of these groups to distribute to women and children.

On the other hand, the MOH clearly does not have the capacity to take on the additional community level activities initiated by the project, such as IGAs. These activities will need to be self-sufficient at village level within the time frame of the project.

Three years is a short time frame to achieve all-round sustainability. Yet the evaluation team believes that quantifiable gains will be maintained in most significant areas of project focus.

5.11. Budget Management

No major budget revisions have been made since the DIP was submitted and approved. The financial pipeline analysis is attached as Annex I. The current monthly bum rate is $23,781 (combined AID/IEF). This is less than the estimated bum rate ($29,316, combined AID/IEF) calculated on the budget. There are several factors that contributed towards the under-expenditure.

First, was a delay in transfer of funding from the main external bank account in Blantyre to the field office account during late 1995. This was due largely to a several-month period in 1995 in which the Headquarters monthly funding request from the IEF Letter of Credit was interrupted due to the withdrawal of the Debt Reduction Facility organized by Finance for Development, Inc. (formally the Debt-for-Development Coalition, Inc.). In the first quarter of 1995, IEF was solicited to join other PVOs by Finance for Development, Inc, to participate in a debt swap. IEF planned to participate at a level of $275,000 and approvals from the Office of Procurement to the amend to the Cooperative Agreement budget were solicited and approved. There were numerous delays to finalization of the program and later in October 1995, IEF was informed that the Reserve Bank of Malawi withdrew its offer to issue Debt Reduction Promissory Notes. Due to the uncertainties in mid-to-late 1995, transfers from Headquarters to IEF/Malawi were delayed on several occasions resulting in some disruption at the field level.

Second, the expenditure through June 1996 does not include calculation of severance payments owed to staff at the end of the project nor the MTE and final evaluation costs. It is expected that the monthly bum rate will increase to planned levels and remain constant until the end of the project. Funding is adeouate for needs through the oroiect end date August 30. 1997. The cash match at this point is underspent by five percent, but the project plans to use IEF funds to replace two project vehicles which will bring the match to the required level.

5.12. Sustainability

During the final year of project activities, sustainability will be a major consideration. The MTE recommendations to increase management and supervisory skills of the MOH, through training, are aimed at that goal. At the same time, the IEF needs to work with the MOH to define and agree as early as possible which aspects of the current project are sustainable and which may not be unless further resources are found.

The project already shows several elements of a potentially sustainable program:

- Achievement of defined national goals;
- Integration into MOH management and logistics systems;
- High degree of coordination with local counterparts;
- Community participation and involvement of community workers.

ensure that ORS is always available. A secondary recommendation is for review of messages aimed at encouraging continued breast feeding and giving solid foods during diarrhea.

The evaluation team noted that better water supply is one of the key priorities for VHCs. The recommendation is for collaboration with other NGOs having experience in the water field.

Nutrition

• *Continue breast feeding education, as currently implemented at the community level.*
A follow up of the joint IEF/Wellstart qualitative research done in 1992 should be considered. Funding outside of the child survival program would be appropriate for such an activity.

Maternal Care

• *Continue activities as planned to complete training of all TBAs.*
Refresher courses for all TBAs should also be given before the end of the project. A female coordinator (IEF staff) should take responsibility for training and supervision of TBAs.

Primary Eye Care

• *Continue refresher training of traditional healers, and carry out further evaluation of outcome.*
The training and evaluation of traditional healers is a strong point for IEF and should be continued. The addition of outcome evaluation using cause of blindness seen at the district's hospitals would provide valuable justification of the intervention. Trends in attendance at Chikwawa District hospital for corneal ulcer, 1994 through eventually 1997, should be examined as hard evidence of impact on disease outcome. The evaluation team further recommends that tetracycline eye ointment be given to traditional healers. Discussions should be held with MOH and Sight Savers in Lilongwe (Dr Moses Chirambo, Director and Malawi senior Ophthalmologist). Traditional healers could also be used as outlets for ORS. (Note: the MOH is currently not in favor of distributing ORS and/or tetracycline through THs. The IEFs role would be to lobby for greater community involvement in health care through THs.)

Drug Revolving Funds

• *Follow MOH policy, increase publicity , and simplify record keeping.*
Follow MOH policy to use the VHC rather than an individual VHV as responsible party to DRF. Publicity campaigns should be mounted to announce DRFs and educate communities about the service. It should be clear that DRF are run for profit. Arrangements should be made to deal with surplus funds.

6. SUMMARY OF INTERVENTION RECOMMENDATIONS

Immunization

- *Concentrate on Quality Assurance and Measles Coverage*

Activities to maintain, and further increase immunization coverage should be strengthened. At the same time, the quality of vaccine handling and delivery needs to be constantly examined.

The evaluation has identified missed opportunities, especially failure to immunize sick children, as a major block to further raising coverage. Most measles vaccine is being given later than the recommended nine months. A major reason for measles immunization being delayed is failure to give vaccine to children who have fever or diarrhea. Missed opportunities for giving TT to mothers are mainly when mothers bring their children for immunization.

Although not an objective for the DIP, the project should now attempt to improve the quality of surveillance and disease reporting for measles and neonatal tetanus. The MOH could be supported with NT surveys to detect high risk areas. As measles coverage is the lowest reported, increase attention should be given to this activity.

Vitamin A

- *Maintain adequate supplies of Vitamin A*

Shortfalls in vitamin A supply at all levels need to be corrected. The problem should be addressed by looking at reserve stock levels, improving response time to re-ordering and trying to do better with transport.

Efforts should be intensified to reach as many women as possible at delivery, using VHVs as well as TBAs. WHO recommendations are for supplementation within one month of delivery. So long as MOH recommendations for supplementation within two months are maintained, the Child Survival project should report on both time intervals.

There should be more emphasis on improving community knowledge about vitamin A - and healthy eating in general. Vitamin A must be seen as a food and not a medicine. The IGA gardens should be used to promote this objective.

Control of Diarrheal Diseases

- *Maintain stocks of ORS*

IEF should concentrate on improving supply of ORS from the MOH, by creating fail-safe systems for re-ordering at defined stock levels, trying to improve transport and by increasing the number of outlets. Saturating the area with ORS providers would be the best way to

7. LESSONS LEARNED

- The IEF Child Survival project is ambitious and highly complex with many interventions and activities involving different management and technical skills. Ensuring both that objectives are reached and that sustainability is assured within a time frame as short as three years is a serious challenge.

- Any project exists in a wider context. In the case of this Child Survival project some external changes have aided in meeting objectives (such as increased rainfall in recent years and better harvests), some have hindered them (such as increased food prices and higher cost of essential household goods).

- Fewer rather than more interventions and activities are desirable, to ensure that project efforts are focused.

- Collaboration and coordination are essential determinants of sustainability. Collaboration with the MOH, along with handing over of activities and trained staff, are some of the most successful features of the project. On the other hand, the process of handing over implies loss of control over both objectives and implementation. There is a trade-off between immediate results and long-term sustainability.

- Community involvement has the maximal potential for sustainability. But expectation of community involvement, as well as the extent to which communities can solve their own health problems, needs to be realistic. A project needs to give as much support as possible to VHCs and volunteers, not just form them.

- Gender issues are important and should not be ignored. Child Survival projects put large demands on women. Therefore additional opportunities to improve the health of women as well as children should be encouraged. For example, in the project District over 50% of women of childbearing age are anaemic; there is an obvious need for iron supplementation.

- Logistics are critical for any system functioning over a large geographical area. Transport has emerged as a key project issue for all interventions and activities. Non-availability of transport at all levels was the most frequent single cause of breakdowns in the District health system and for delay in project activities.

To simplify record keeping, only a tally sheet of users need be kept. Stock level monitoring should be explained to avoid recurrent shortages. Although not an MOH current recommendation, the evaluation team believes that making condoms available through DRFs would be life saving.

Income Generating Activities

- *Focus on nutrition-linked IGAs (gardens).*
- *Hold intended creation of further chicken IGA*
- *Establish 5 additional IGAs as planned and increase market research.*

Basic market analysis should be carried out for existing and future IGAs. Resulting information should be fed back to the village health committees, the MOH and the Ministry of Agriculture. Until existing IGA results are assured, care should be taken with raising community expectations. Data from existing chicken IGAs should be produced and evaluated to determine establishment of future chicken IGAs.

ACKNOWLEDGEMENTS

Ensuring that the evaluation took place on schedule, and as importantly was meaningful, was a major challenge. Thanks to Christine Witte, IEF Country Director, and the whole project team in Chikwawa District. They not only made the evaluation possible, they made it exciting and enjoyable. Special thanks to the project manager, Genner Chipwaila, who was responsible for organizing all the field visits apart from sharing his experience as a member of the evaluation team. He and his wife also very kindly invited us into their home.

Mr S Kaphesi, the IEF driver, drove us over dirt roads, and over a surprising number of bumps, with persistent good humor despite the long hours. He somehow managed to persuade an ageing Landrover that it could continue on its way with a loose exhaust and a stubborn carburetor.

John Barrows, Director of Programs at IEF headquarters gave many important insights into the evaluation, as well as coordinating the overall planning.

The real heroes of the evaluation are the people who will never read it - the villagers, mothers, village health volunteers, primary health care workers, HSAs, TBAs, traditional healers who welcomed us into their communities and answered all our questions. Hopefully what is written here will make their lives, and the lives of their children, longer and a bit better.

- The malnutrition problem in the project area is massive. In order to maximize impact on improving nutritional status, focused nutrition efforts such as emphasis on micronutrients make sense. In conceptualizing the issues, it is helpful to see nutrition as both an "input" (food, vitamin A) and as an "output" (combined effect of economic situation, commodity prices, environment, incidence of infectious diseases.)

- Income Generating Activities are commercial ventures and, before introduction, need appropriate market research as well as consideration of incentive issues.

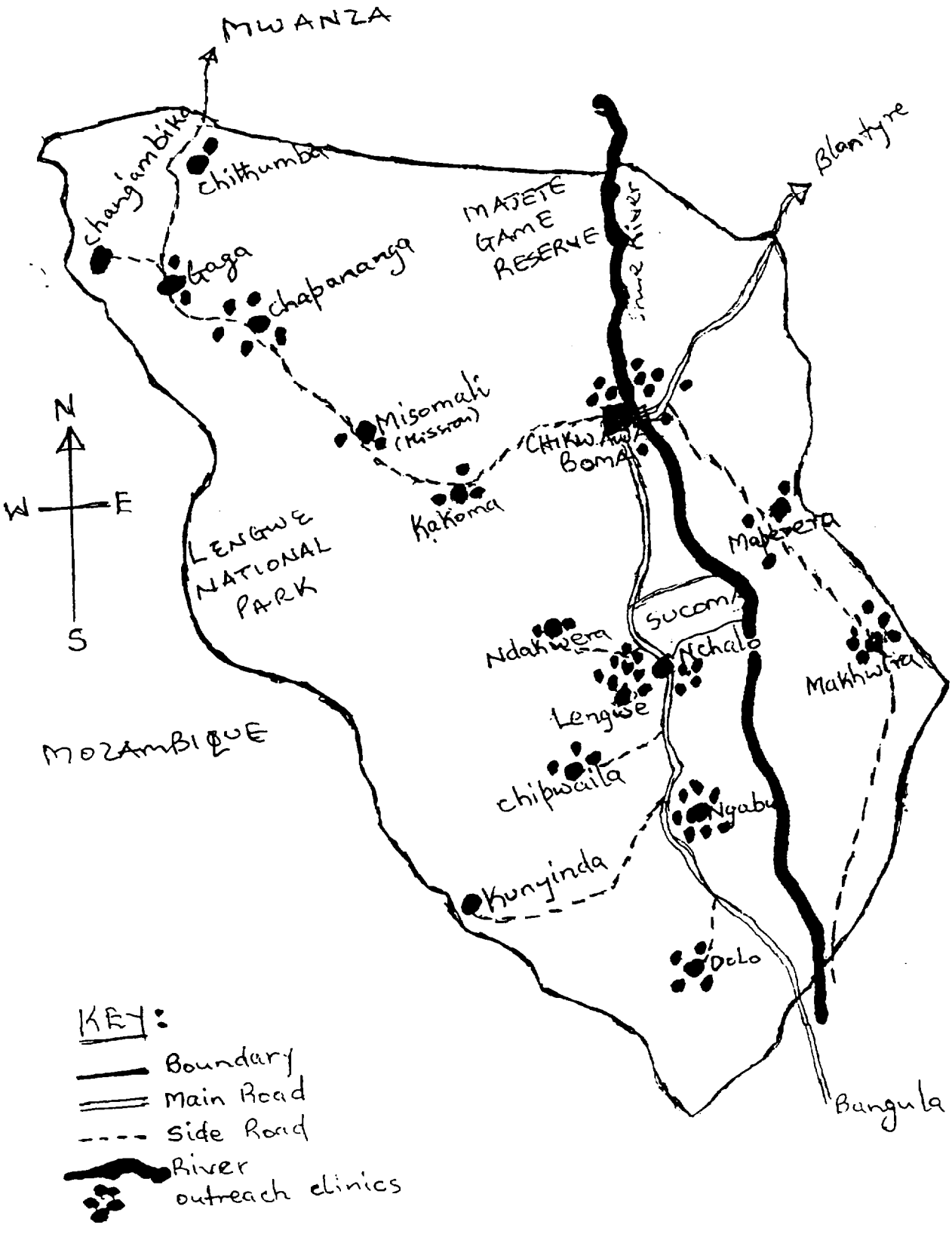
- As projects mature, quality of implementation becomes as important as reaching quantifiable objectives. Quality assurance should be emphasized in the process of consolidating achievements.

Health Care Facilities in Chikwawa District, Malawi

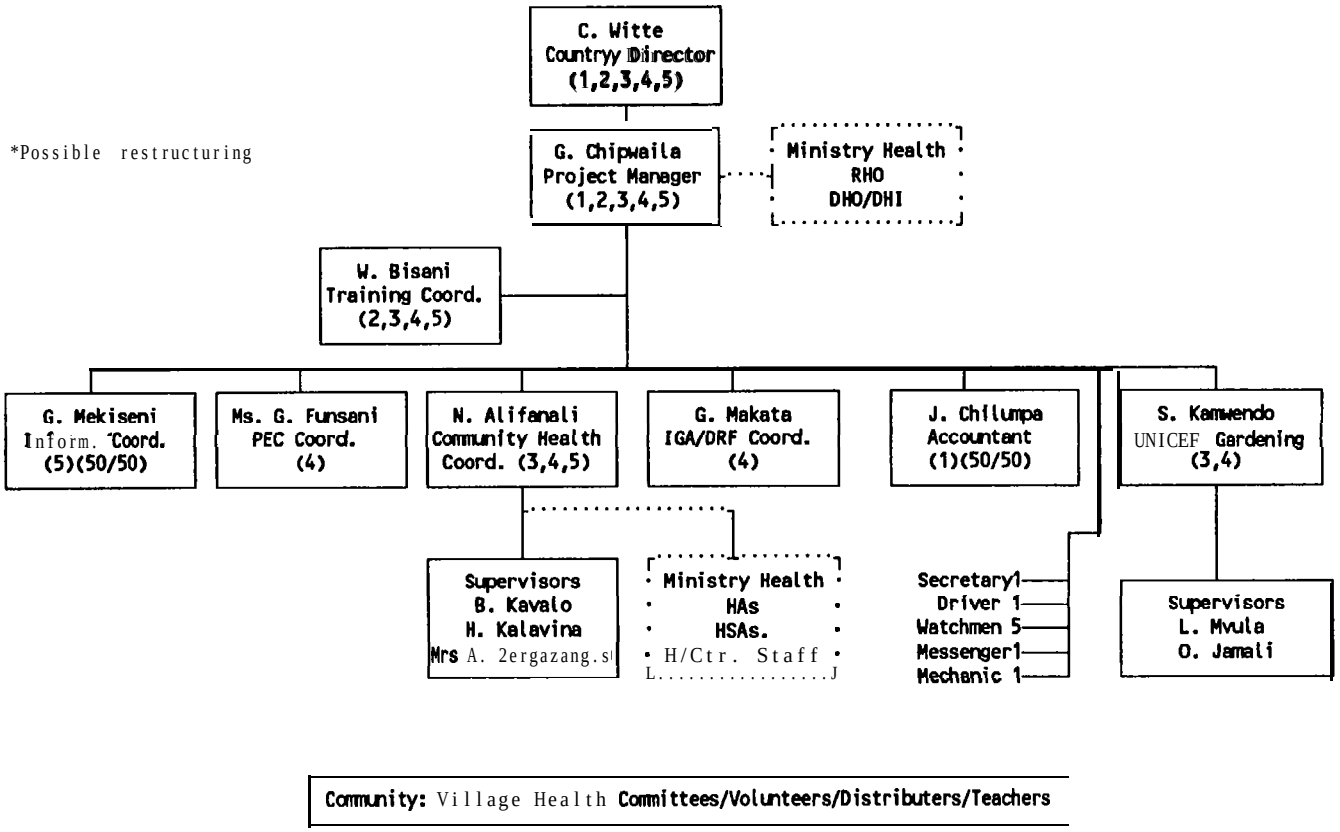
ANNEXES

Organogram for IEF Child Survival Project, Malawi

CHIKWAWA DISTRICT MAP AND H/Cs



ANNEX A: KPC Survey



*Possible restructuring

(1) Project administration/management
(2) Oversight of technical health activity
(3) Monitoring of progress toward each objective
(4) Trainirq of health workers
(5) Health Information System

Note: All staff are full-time host nationals except for the expstriate Country Director and Gardening Coordinator.

(82%). Only one woman attended secondary school or higher. While only 5% of women said they had, in general, work from which they could obtain cash, many of the remaining 95% reported engaging in specific cash-generating activities.

PROJECT OBJECTIVES EVALUATED

Not all of the project objectives could be assessed in the context of this mid-term evaluation: those that could be considered are given below. The sample sixes are very small in some cases. For example, there are only 94 children of three months or younger in the study. However, the results to this point look encouraging in some areas, with more effort still needed in others.

IEF/MALAWI CHILD SURVIVAL PROJECT:

MID-TERM EVALUATION OF MCH/CHILD-SURVIVAL KNOWLEDGE & PRACTICES

BACKGROUND

This knowledge and practice questionnaire was administered June and early July of 1996 as part of a mid-term evaluation of IEF's MCHKhild-survival activities in Chikwawa district. Approximately 40 villages were included in the sample. Altogether, over 600 women were interviewed. Information is presently available on 596 of these women. The tables and summaries below are based on the information from these 596 women.

Women were interviewed if they had a child of approximately 2 years or younger. One mother-child pair per household was included. The interviews gathered data on basic demographic information. Data on knowledge and practices with respect to their children were collected the following areas:

- Breast feeding (including weaning and food supplementation);
- Provision of vitamin A-rich foods and implications of Vitamin A deficiency;
- Diarrhoeal disease
- Immunizations and vitamin A supplementation (for themselves as well as for their children)
- Ante-natal care during the pregnancy for the child concerned
- Malaria

Finally, some information on family planning was gathered.

This short summary of the evaluation will give a basic description of the study participants, and review the findings with respect to the pertinent project objectives as stated in the initial proposal. The overall findings, from all the areas mentioned above, are summarized in table form in the appendix.

DEMOGRAPHICS

The demographic variables are summarized in Table 1 (page 3). The average age of the participating women was 28 years, based on 590 of the 5% women. Six women aged less than 12 years were not included in this estimate (while it is possible these 6 could be very young mothers, it is also likely that the ages given were incorrect). The age range was from 15 to 45 years. The average age of the children was 11 months, ranging from newborn to 28 months.

Sena and Mang'anja women are fairly evenly represented (43 % and 38%, respectively), with 19% coming from other tribes. Women living in their own villages and those of their husband's are almost equally represented (49% and 47 % respectively). The 4% from neither spouse's village are mainly there because of work (theirs or their husband's). The majority of women in the study are illiterate

FAMILY PLANNING	
G.2596 **(up from 20%) of mothers will use a modern** contraceptive, assuming they a.) have children under 24 months, and b.) want no children in the next 2 yrs.	Of women meeting these criteria 19% are using a modem FP method.
VITAMIN A	
H. 50% (up **from** 30%) of women **will** receive Vit A supplementation within 1 month of delivery	**240 women (40%** if 596) were **confirmed** as having received any Vit A. Of these women, **90 (48%)** received their dose at or within 1 month of delivery.
To be partially addressed	
I. 75 % (up from 49 **%)** of children 6-71 months will receive vitamin A supplementation**	**75% of children in the age group 628 months have received any Vit A supplementation as recorded. About half of these children received 1 dose only.**

"fully immunized" assumes at least three OPV, three DPT, one measles, and one BCG. **The maximum age of children in this survey was approximately 2 years only (28 mkths), thus the full age range can not be addressed.

Objectives of IEF's MCH/Child Survival project, with pertinent results from the midterm evaluation.

OBJECTIVE	PRESENT ASSESSMENT
BREASTFEEDING	
A. 25 % (up from 21%) of mothers will exclusively breastfeed their O-3 month old infants	Of 594 women, only 35% believe supplement food should be given before 4 months. Of 94 children in the 1.3 mo. age group, 64 % appear to have been exclusively breastfed.
DIARRHOEA	
B. 90% (up from 83 %) of children O-23 months will receive appropriate ORT during diarrhoeal episode(s)	Only 81% of the children in this age group are getting ORS or a salt-sugar solution
C. 80 % (up from 75 %) of children O-23 months will receive same amtount or more of breastmilk during diarrhoea episode(s)	Of 110 **children in this** age group who had diarrhoea within 2 weeks of the survey, 65% were receiving the same amount or more breastmilk during this episode.
D. 65 % (up from 55 W) of children O-23 months will receive same amtount or more of solid food during diarrhoea episode(s)	Of 108 children in this age group who had diarrhoea within 2 weeks of the survey, 42% were receiving the same amount or more of solid food during this episode.
IMMUNIZATION	
E. 90 % (up from 83 W) of children 12-23 months old will be fully immunized*	80% of the 258 children in this age range have been fully immunized.
F. 75 % (up from 47 %) of women will receive two or more TTV doses	**Of 482 women with confirmed TTV info, 94% have had $\geq$ 2 doses of TTV. (Assuming that all women *without* confirmed info did not receive $\geq$ 2 doses, 76% of 596 women would have had $\geq$ 2 doses**

Vitamin A supplementation in women, however, is low. There may have been some reporting difficulty, because this parameter appears to be considerably lower in this mid-term survey than it was at baseline. Only 19% of women overall appear to have received vitamin A supplementation either at (4%) or within 1 month (15%) of delivery, down from 30% overall at baseline. Another 12% of women received supplementation more than 1 month after pregnancy. 9% of women received vitamin A before delivery. If the message was getting out into the community, one might expect women who have had children more recently (closer to the time of the mid-term survey) to be more likely to have had Vitamin A supplementation with on month of delivery: such does not appear to be the case. The trend seen in three cohorts of children (O-6 months, 6-12 months, and 12-24 months) was uneven, with 16-17% of women in both O-6 month and 12-24 month cohorts having had the appropriate supplementation.

Comments on the objectives and relevant results

Breastfeeding: Among women currently breastfeeding children of 3 months or less, 64% did not report giving their child with any of the items queried in question 6 of KPC Questionnaire (e.g., tea, phala, fruit, etc.). It is possible that women did provide some other food not included.

Diarrhea: Salt-sugar solution (SSS) was presumed to be sufficient as ORS. 73 % of children were getting, at least, actual ORS. Only 8% of children received SSS without also receiving ORS. Of the 65 % of children receiving the same amount or more breastmilk during a recent or ongoing diarrhoeal episode, the number of children in each group was evenly divided between "same amount" and "more" (36 children in each group). 34 other children (31% of 110) received less breastmilk. Only 2 children stopped feeding.

Of the 44% of children receiving the same amount or more solid during a recent or ongoing diarrheal episode, most (27 children, or 25% of 108) received more food as compared to the same amount (18 children, or 17% of 108). 38 children (35%) received less food, and 17 (16%) stopped eating. Only 7 mothers limited the amount of food given.

Immunization: 80% of children between 12 and 24 months of age were fully immunized, meaning they had had 3 vaccinations each of OPV and DPT, and 1 each of BCG and measles. Thus, the level of vaccination remains relatively unchanged since the baseline survey (80% is lower then the 83% seen in the baseline survey, but the difference between the two is not siignificant). However, 93 % of these 12-24 monthold children had received 3 OPV shots, and 92% had received 3 DPT shots. The lowest levels of vaccination seen were for measles: only 87% of children had been immunized for this disease. BCG levels were similar, with 89% vaccinated. 74% (55 of 74) of children now in the 12-24 month age group were fully vaccinated by 12 months of age. There was some question as to the validity of the dates of vaccination. In some case the dates were suspect because of incosistent time progression or a date earlier than a child's birth.

As for the mothers, the supposition that those without TI'V cards (or some other documentation of TTV immunization) had not been vaccinated is made. It is certainly not impossible that some of those without cards may have been vaccinated. But, even with the negative assumption, the target of having 75% of mothers vaccinated appears to have been met.

Family Planning: Family planning use remains essentially unchanged since the time of the baseline. 19% of women with children under 2 years who did not want more children were using a modem method. These methods included the following: DPV, oral contraceptives, condoms, Norplant, and tubal ligation. There were no couples with a vasectomy, and none using IUDs, foams, or jellies. Natural methods were common, especially abstinence, which accounted for 9% of family planning use (in addition to the modem methods. Only 3 of 45 "abstaining" women reported abstinence due to lactation, but this number may be higher, especially in a group of women with such young children.

Vitamin **A:** Vitamin A supplementation of children continues to be successful for the IEF. In children over 6 months of age (n=387), 75% have received some vitamin A supplementation. About half of these children (38% of the 387) have had two or more doses.

TABLE 1: Demographic information for the 596 participants.

DEMOGRAPHIC INFORMATION	MEAN (S.D.)
Age of youngest child (months)	11 (7)
Mother's...	
Age(years)	28 (7)
	%
Ethnic group:	
Sena	43
Mang'anja	38
Other	19
Living in who's village:	
Mother's	49
Her husband's	47
Other	4
Highest level of school completed	
None	66
Primary, can ***not*** read	16
Primary, can read	18
Secondary or higher	< 1
Work	
Has work or can get money	5
Handicraft, sewing, etc.	5
Harvesting, fruit picking	11
Selling farm products	26
Selling food, milk	70
Casual labour	8
Servant/household services	1
Storekeeper	10
Fulltime employed	4
Other	12

Appendix:

Summary tables
for mid-term evaluation questionnaire

A mother should continue breastfeeding when she becomes pregnant with another child	62	(594)
Mothers should start supplementq feeding.. .		
Mother doesn't know	29	(594)
At 4-6 months	35	
Before 4 months	31	
After 6 months	5	
Additional foods that can be given		
Mother doesn't know	4	(596)
Bananas	13	
Pawpaw	27	
Other	62	

TABLE 2: Breastfeeding and nutrition knowledge and practices. The approximate sample size from which each set of calculations is made is provided, as some questions concern only a sub-set of the population, and there is some missing data.

BREASTFEEDING / NUTRITION	**%**	**(n)**
Mother is breastfeeding youngest child	97	(590)
If no, Mother has ever breastfed child	94	(18)
Hrs. post-delivery mother started breastfeeding		
One hour	65	(592)
1 to 8 hours	20	
After 8 hrs	12	
Don't remember	6	
Does mother give child any of the following		
Water or tea	82	(595)
Cow's milk or formula	40	
Soft food such as **phala**	82	
Fruit or fruit juice	59	
Mango or papaya	56	
Green leafy vegetables	63	
Meat or fish	53	
Peas, beans or groundnuts	57	
Eggs or yogurt	42	
Mother puts the following in child's food:		
Green leafy vegetables	66	(595)
Honey or sugar	62	
Lard or vegetable oil	41	
What should the mother do [re: breastfeeding] for the first three or four days of child's life?		
Mother doesn't know	37	(593)
Breastfeed baby with colostrum	18	
Avoid bottle feeding	5	
Frequent sucking (increase milk)	23	
Taking care of breast	33	
Other	10	

TABLE 4: Knowledge and management of diarrhoeal disease. Approximate sample size for calculations is provided, as some questions concern only a sub-set of the population.

DIARRHOEA	%	N
Child suffered from diarrhoea in last 2 weeks	19	(592)
If yes, When child had diarrhoea, did mother:		
Breastfeed more than usual	32	(114)
Breastfeed same as usual	34	
Breastfeed less than usual	31	
Child stopped feeding	<1	
Provide solid foods more than usual	25	(112)
Provide solid foods same as usual	19	
Provide solid foods less than usual	34	
Mother stopped feeding child solid foods	6	
Child stopped eating solid foods	15	
Medications given for diarrhoea		
None	5	(114)
ORS	73	
Sugar-salt solution	20	
Fruit or fruit juices	0	
Rice "juice"	1	
Pills or tablets	43	
Other	11	
When child had diarrhoea, mother sought...		
District hospital	5	(114)
Health center	61	
Mission hospital	4	
Store	28	
Village health volunteer	27	
Traditional healer	4	
Traditional birth attendant	7	
Friends or relatives	0	
Other	1	

TABLE 3: Vitamin A knowledge and it application. The approximate sample size from which each set of calculations is made is provided, as some questions concern only a sub-set of the population.

VITAMIN A	%	(N)
Vitamin A is good for.. .		
Mother doesn't know	46	(596)
Preventing blindness / night blindness	9	
Preventing diarrhoea	17	
Preventing ARI	8	
Preventing malaria	18	
Other	29	
Vit A is of no use	< 1	
These foods contain Vitamin A		
Mother doesn't know	17	(5 64)
Green leafy vegetables	74	
Yellow fruits or fruit juices	55	
Meat or fish	29	
Breastmilk	8	
Egg yolk	16	
Other	27	
No foods contain Vit A	1	
Mother should receive Vit A.. .		
Soon after delivery	36	(596)
Within two months after delivery	2	
During ANC (before delivery)	25	
Mother doesn't know	27	
Consequences of Vit A deficiency are...		
Blindness or night blindness	8	(595)
Stunted growth in children	30	
Polio	11	
Other	59	

TABLE 5: Knowledge of immunizations and supplementation. Records of receiving vaccinations and Vit A supplements exist only as confirmed by presence of an ANC card, an underd's card, or other similar documentation. Approximate sample size for each set of calculations is provided, as some questions concern only a subset of the population.

IMMUNIZATIONS / VIT A SUPPLEMENTATION		
	%	**(N)**
Child has received any immunizations	93	(594)
Number of times a mother should receive TTV to protect her and the child		
Once	3	(596)
Twice	6	
Three or more times	83	
Mother doesn't know	9	
Child has an "Under 5" card?	89	(592)
Number of OPV vaccinations:		
None	13	(490)
At least 1		
At least 2	13	
At least 3	74	
Number of DPT vaccinations:		
None	< 1	(492)
At least 1	11	
At least 2	13	
At least 3	76	
Child received BCG vaccination	85	(596)
Child received measles vaccination	46	(596)
Number of doses of Vit A received		
None	< 1	(492)
At least 1	11	
At least 2	13	
At least 3	76	
	MEAN	**(S.D.)**
Avg. age (months) child should receive measles vaccination?	8	(5)

Signs/symptoms which would lead mother to find assistance for child with diarrhoea are.. .		
Mother doesn't know	2	(595)
vomiting	20	
Fever	19	
Dry mouth, sunken eyes, de-creased urination	26	
Diarrhoea for more than 2 weeks	53	
Blood in stool	1	
Loss of appetite	16	
Tiredness	73	
Other	9	
Most important thing(s) to do after child has recovered from diarrhoea are...		
Mother doesn't know	13	(594)
Give little food more frequently	64	
Feed more food than usual	13	
Give high energy foods	26	
Other	17	

TABLE 7: Malaria knowledge and management. Approximate sample size for each set of calculations is provided, as some questions concern only a sub-set of the population. The entry in italics under "other medicines" commonly used to treat malaria notes the large number of women who give analgesics to children suspected of having malaria.

MALARIA	%	(N)
Mother considers malaria major problem?	89	(595)
One can get malaria from...		
Bite of housefly	8	(559)
Bite of mosquito	46	
Dirty water	5	
Parasites	2	
Signs and symptoms of malaria, as reported		
Fever	87	(560)
Swollen glands	2	
Anaernia	45	
Painful joints	34	
Headache	29	
other	31	
Medicines are commonly used to treat malaria		
Fansidar	60	(595)
Chloroquine	17	
Bactrim	2	
Quinine	4	
other medicine	80	
Aspirin &/or Panadol	62	
To protect herself from malaria, mother is.. .		
Using a net	3	(596)
Using coils, aerosols, or dung	34	
Using wire mesh in windows	3	
Disrupting breeding sites or spraying	25	

TABLE 6: Ante-natal knowledge and ANC attendance. Approximate sample size for each set of calculations is provided, as some questions concern only a sub-set of the population.

ANTE-NATALCARE	**%**	**(N)**
When expecting child, mother went to ANC	**97**	**(594)**
Mother has an ante-natal card?	37	**(593)**
If yes, Number of ANC visits (from card)		
One	2	**(217)**
Two	24	
Three or more	73	
During what month of pregnancy should a mother make her first visit to the ante-natal clinic?		
3 months	43	**(220)**
4 to 6 months	45	
7 or more months	10	
Mother does not know	1	
Mother has **TTV** card with TT'V information	82	**(594)**
Number of **TTV** vaccinations received		
None	**< 1**	**(482)**
One	6	
Two	27	
Three or more	67	

TABLE 8: Family planning knowledge and practices of the mother. Approximate sample sixes for each set of calculations is provided, as some questions concern only a sub-set of the population.

FAMTLY PLANNING	%	(N)
Is mother pregnant now?	6	(594)
If no, woman wants another child in next 2 yrs		
No	61	(572)
Doesn't know	24	
If mother does not want (or D.K.) children in next 2 yrs.		
Mother is currently using a FP method	29	(490)
Among women using a method..		
Proportion of women using.. . .		
Tubal ligation	1	(141)
Vasectomy	0	
DPV (injection)	29	
oral (Pill)	23	
IUD	0	
Condom	6	
foam/jelly	0	
lactation ammemorrhoea.	*2*	
rhythm	1	
abstinence	*30*	
coitus interuptus	0	
Norplant	*5*	
CONDOMS		
Women can correctly identify a condom	*84*	(596)
Frequency of condom use w/ husband or partner?		
Never use	*94*	(595)
Sometimes use	*5*	
Always use	1	